



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/004,290	10/25/2001	Yuzuru Suzuki	SZI 2 0018	8147

7590 11/29/2002

Jay F. Moldovanyi, Esq.
Fay, Sharpe, Fagan, Minnich & McKee, LLP
7th Floor
1100 Superior Avenue
Cleveland, OH 44114-2518

EXAMINER

NGUYEN, HANH N

ART UNIT	PAPER NUMBER
----------	--------------

2834

DATE MAILED: 11/29/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/004,290

Applicant(s)

SUZUKI ET AL.

Examiner

Nguyen N Hanh

Art Unit

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 9/23/02.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) 1 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Remarks

1. The cancellation of claim 1 and the amendment of claims 2-4 has been acknowledged. The indicated allowability of claims 3-4 is withdrawn in view of newly found prior art to Sakamoto.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 2 recites the limitation "the rotator unit" in lines 8 and 9. There is insufficient antecedent basis for this limitation in the claim.
3. Claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is not clear about the limitation "and another pair of the S pole and the N pole in which the width of the N pole are alternately arranged" in lines 16-18 of claim 4. Under the light of the specification, the Examiner interprets the limitation as "and another pair of the S pole and the N pole in which the width of the S pole is set larger than the width of the N pole are alternately arranged". It is noted that all limitations of claim 4 were described in claim 3.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art

are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saji et al.

Regarding claim 2, Saji et al. show a stepping motor (Fig. 1) in which a stator unit is composed of a pair of stator sub-assemblies integrally attached to each other in a back to back manner, each stator sub-assembly having a plurality of pole teeth (15 and 15') formed at its inner circumference and housing a coil inside thereof (17 and 17'), and a rotor unit (6) is rotatably disposed with a small gap from the plurality of pole teeth and has multiple magnetic poles (5) formed on a circumference thereof, the multiple magnetic poles of the rotator unit being formed by magnetizing the rotator unit alternately with an S pole and an N pole in a circumferential direction (Fig. 6 and 7).

Saji et al. fails to show the stepping motor wherein while a magnetic pole width consisting of the S pole and the width of the N pole in each pair are different from each other by a constant electrical angle ranging from 15 degrees to 50 degrees. It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to build a rotor for the stepping motor wherein the width of the S pole and the width of the N pole in each pair are different from each other by a constant electrical angle ranging from 15 degrees to 50 degrees, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

5. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saji et al. in view of Sakamoto.

Regarding claims 3 and 4, Saji et al. disclose a stepping motor (Fig. 1) comprising: a stator unit comprising a pair of stator sub assemblies integrally attached to each other in a back to back manner, each of the stator sub-assemblies including: a plurality of pole teeth (15 and 15') formed at an inner circumference of the sub-assembly and housing a coil (17 and 17') inside thereof; a rotor unit (6) rotatably disposed with a small gap from the plurality of pole teeth and has multiple magnetic poles formed on a circumference thereof, the multiple magnetic poles being formed by magnetizing the rotor unit alternately with an S pole and an N pole in a circumferential direction. Saji et al. fail to show one pair of the S pole and the N pole in which the width of the S pole is set to be smaller than the width of the N pole and another pair of the S pole and the N pole in which the width of the S pole is set to be larger than the width of the N pole are alternately arranged.

However, Sakamoto discloses a brushless motor wherein one pair of the S pole and the N pole of the rotor in which the width of the S pole is set to be smaller than the width of the N pole and another pair of the S pole and the N pole in which the width of the S pole is set to be larger than the width of the N pole are alternately arranged (Fig. 14) for the purpose of magnetizing the rotor (Col. 2, lines 20-25).

Since Saji et al. and Sakamoto are in the same field of endeavor, the purpose disclosed by Sakamoto would have been recognized in the pertinent art of Saji et al.

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify Saji et al. by making a rotor with one pair of the S pole and the N pole in which the width of the S pole is set to be smaller than the width of the N pole and another pair of the S pole and the N pole in which the width of the S pole is set to be larger than the width of the N pole are alternately arranged as taught by Sakamoto for the purpose of magnetizing the rotor.

Response to Arguments

6. Applicant's arguments filed 9/23/02 have been fully considered but they are not persuasive. Applicant's argument is on the ground that the discovery of the particular limitation in claim 2 (the width of the S pole and the width of the N pole in each pair to be different from each other by a constant electrical ranging from 15 degrees to 50 degrees) required more than ordinary skill in the art and the reference that the Examiner relies on, Saji, has different object of invention. The Examiner respectfully disagrees with the Applicant. The Applicant is invited to consider that there is virtually no difference between the first embodiment of present invention as illustrated in Fig. 5b of the disclosure and the structure disclosed by Saji in Fig. 6. Both have a magnetic pole width (P in present invention, $4w$ in Saji) is set to a predetermined constant value. The only difference is the width of the N pole of Saji is greater than the width of S pole but the polarities could be reversed (as taught by Kordik in Col. 11, lines 16-20). The purpose of Saji is to improve the stationary state of the motor clearly directs to reducing vibration as described in the abstract. In saji's structure, a magnetic pole width consisting of the S pole and the width of the N pole in each pair are different from each

Art Unit: 2834

other by a constant electrical angle but Saji does not determine the range. It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to build a rotor for the stepping motor wherein the width of the S pole and the width of the N pole in each pair are different from each other by an electrical angle ranging from 15 degrees to 50 degrees, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

Conclusion

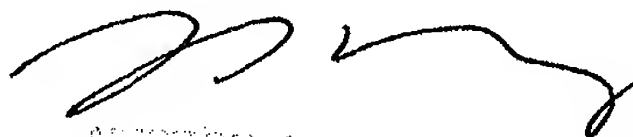
7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hanh N Nguyen whose telephone number is (703) 305-3466. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on (703) 308-1371. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3431 for regular communications and (703) 305-3431 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

HNN

November 17, 2002


NESTOR RAMIREZ
SUPERVISOR
TELEPHONE (703) 308-1371
FAX (703) 305-3431